PCG PS

VOLUME 9 NUMBER 4

APRIL 1991
NEWSLETTER

PITTSBURGH COMMODORE GROUP

P.O. BOX 16126, Pittsburgh, PA. 15242

An Organization whose purpose is to foster the understanding and enjoyment of personal computers.

Minix 1.5 for the Amiga

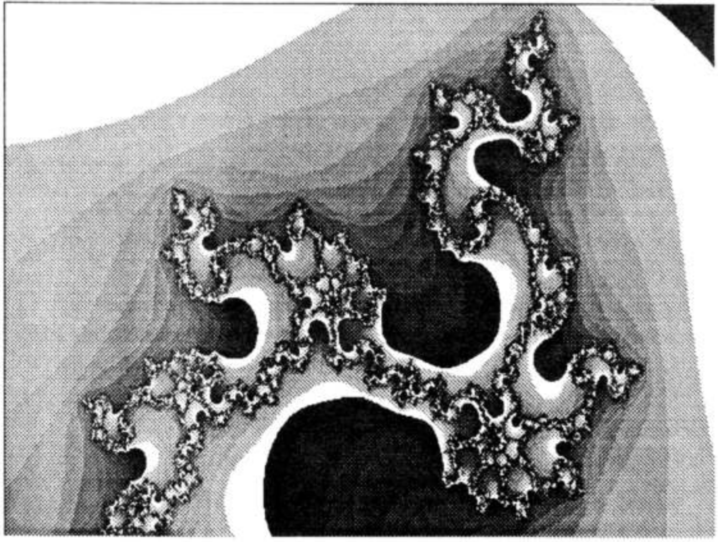
Review by Ed Berger

Minix is a package of educational software, written by Andy Tannenbaum, for use in universities which teach computer science. Minix is an operating system, which is functionally equivalent to the Version 7 of UNIX.

Some History...

Once upon a time, there was a small multitasking operating system developed at Bell Labs, available to universities as a source code tape that they could get for nothing more than the cost of the media, and use in their classrooms as examples of how such an operating system was designed. With the split-up of AT&T, and Bell, enhanced versions of this operating system became a 'marketable product' and some controls on it and its predecessors' availability became necessary. Today we refer to these as "License Fees" and "Contracts". Andy, like other CS teachers missed the availability of "hands on" experience that he used to have available for his students, and decided to do something about it. He developed Minix for the PC, to give his students an operating system in source code that they could, and should modify for their own use. Minix was originally designed to work on a standard IBM PC/XT with 512K RAM and a floppy, so it had to be small. It also had to be "understandable" if it was to be the basis of a 1 semester course about operating systems. Minix is described in a book written by Andy Tanenbaum, called "Operating Systems Design and Implementation", which includes source code from

Continued on page 5...



This Month's Schedule

Sunday, April 21, 1991

9:00 - 9:30 Meeting Registration. Visit our PCG Store and find some great prices on blank disks.
9:30 - 11:00 Morning Sig Meetings.
Amiga
Beginner-C64-C128
11:00 - 11:30 The drag, stomp, and kick nominations.
11:30 - 12:30 General Meeting in the Main Lecture Hall.
12:30 - 12:45 A small break, PCG Store open and raffle tickets drawn.

Inside...

Minix, A review by Ed Berger....1
Speak: Device....3
President's Notes....3
Treasurer's Report....3
The Secretary....4
Meeting.info a new column by Reg Ney....4
PCGeos....6
Amiga News....7
Amiga SIG....7
Amiga Librarian....9
Lemmings, a new game by Psygnosis....9
Hard Disk Failures
How your hard disk can fail....10
Disk Structures and Data Optimization
...And what to do about it....11
Loopz, another new game....14
Pagestream, a review....14
Perfect Sound 3.0, a review....15
The Last Byte
Dave is on Cloud 9 this month, sort of....16

No copying programs of any type may be run at the meetings. Anyone found using any copying program at the meeting will be evicted. First offense - 3 month suspension. Second offense - permanent suspension and forfeiture of all dues. Visitors may not bring computers or disks. Everyone must register at the sign in desk. Rooms will not be available until 9:30 AM.

PCG DIRECTORY

Pittsburgh Commodore Group (PCG) PO BOX 16126 Pittsburgh, PA. 15242

BOARD MEMBERS

President	Neal Kushner	828-3505
V.P. & Librarian	Marilyn Richards	531-0531
V.P. for Programs (Speakers,Demos,etc.)	Nick Kish	462-7357
Director of Public Relations	John Blasdell	773-4206
Treasurer	Mark Snowden	487-4725
Secretary	John Mulcahy	921-3947
Board Members at Large	Ken Slone	276-4645
	Bob Agostino	276-7148
	Rick Bilonick	unlisted
Past President	Reg Ney	655-3261

MEETINGS

Meetings are held the 3rd Sunday of every month, except July & August, at Duquesne University's Mellon Science Hall. Visitors are welcome.

9:30 - 9:45am Doors open at Mellon Hall. Registration, Doughnuts & Coffee, Vendor's Tables & Flea Market open.

9:45 - 11:00am Special Interest Groups AM Sessions.

11:00am - 12 Noon Business meeting and/or Scheduled Speakers in Falk Hall on the first floor. If no meeting or speaker is scheduled, SIG's continue.

12 Noon - 1:00pm PCG Store opens, Vendor's Tables & Flea Market re-open.

1:00 - 3:00pm Special Interest Groups PM Sessions.

LIBRARY

The Librarians, Neal Kushner and Marilyn Richards, copy **PUBLIC DOMAIN** and **SHAREWARE** disks for PCG Members. There is a small fee for the disk and service. The Librarians also accept donations of software for all Commodore computers, and attempt to help members locate programs in our extensive library.

PCG BBS

The PCG BBS can be reached at 2400/1200/300 bps, 8 bits, no parity, 1 stop bit. Call 434-5483 24 hours a day. Sysop: John Mulcahy.

DISCUSSION GROUPS

For those who are new members or are not familiar with the workings of the PCG, we hold discussion groups as a part of the meeting, before and after the regular business meeting. Discussion groups are the informal gatherings that the PCG tries to hold each month so that various users can get together and share their ideas or questions about the many aspects of Commodore computing.

Discussion topics may range from how to set up that new C128 to compose music using machine language or the ins and outs of using your modem with Compuserve or QLink. We hope to establish several varied discussion groups at each meeting and then report back the results or findings in the newsletter the next month. Everyone is welcome to come, ask questions, sit back and listen, offer advice and have a good time.

I would like to know your thoughts concerning discussion groups. If you have a particular subject or idea you'd like to see, this is your chance to speak up. We plan to continue with the C128, Amiga, GEOS, and educational groups on a monthly basis again this year. I would like to expand the groups so that we can introduce graphics, music, telecommunications, etc. to both the new and current members. Please volunteer your service if you can. You don't have to be an expert to lead a group, just have an interest and be willing to share some time with your fellow users.

Amiga - Rick Bilonick
MS-DOS - J. Hankowsky (279-1606)
Geos - John Blasdell (773-4206)
C-64/C-128 - Jack Kerchner

NEWSLETTER

The Newsletter is published monthly. Its $1.50 cost is included in the $20.00 annual PCG Membership Fee. Members are encouraged to submit articles of all types. *Please proofread carefully.* Upload your article to the **PCG BBS.** All submissions received by the last Sunday of the month will be considered for inclusion in next month's issue. You may also mail your articles on paper or on disk to the PCG at the above address. Preferred formats are ASCII, Wordperfect 4.x, SpeedScript, or EasyScript, although other formats may be accepted.

Editor: Eric Kennedy **Phone:** 741-3562

This issue of the **PCG Newsletter** was created using the following:

HARDWARE

Amiga 1000, LaserWriter, Migraph Hand Scanner, and assorted other goodies

SOFTWARE

Professional Page, WordPerfect , Uedit, Touchup, ExpressPaint

MEMBERSHIP APPLICATION

Membership Dues are $20 for one year. Bring this application & a check to the next meeting, or mail to:

Pittsburgh Commodore Group
PO BOX 16126 Pittsburgh, PA 15242

DATE______________NEW_____RENEWAL______

NAME________________________________

ADDRESS_____________________________

CITY________________________________

STATE_____________________ZIP__________

PHONE (HOME)___________(WORK)__________

COMPANY_____________________________

OCCUPATION___________________________

EQUIPMENT____________________________

____

SIGNATURE____________________________

THE CLUB NOW EXCEEDS 250 FAMILIES, and we mail to over 50 other User Groups around the world. The total computerist readers of this newsletter is in the thousands.

PCG STORE

The PCG Store features monthly specials on disks, books, magazines, and assorted useful items. See the descriptions in this Newsletter. Back orders, and Mail orders are possible by arrangement with the Manager or Librarian.

ADVERTISING

Full Page $60
Half Page $40
Quarter Page $25
Classified Ads **FREE** to Members

All requests for ads ***MUST*** be accompanied by **camera-ready art** and payment in full, and must be received by the first day of the month in which they are to appear. Please mail your requests to the address shown at the top of this page.

THANK YOU

To our Supporting Sponsor, Duquesne University.

The SPEAK: Device

by Eric Kennedy

Ah, the joys of on-the-job traveling. Late flights. Hotel beds that are too hard. (Or too soft.) Eating out *every single meal.* And being asked to stay away from home ten days longer than expected. Which is what happened to me last month. So, being unable to complete the *PCG Newsletter*, I made a frantic phone call to our humble president, who somehow made time to do the newsletter, even learning Professional Page in the process. Thanks, Neal, for doing a good job on such short notice.

In order to avoid such frantic last-minute improvising. I'd like to set up a backup editor or two. I haven't exactly figured out how this would work, but I'll need one or two people with an interest in Desktop Publishing, and an Amiga with 1 Meg (and preferably a hard drive.) I have one volunteer already, any others? Talk to me at the meeting or on the BBS.

This month, the club received the latest version of Professional Page, 2.0. There are enough differences that I didn't feel comfortable plunging right into it this month, but I ended up having to use it anyway. My first impression is that it has some nice new features, like a real word processor, and box rotation. My second impression is that it is *slow*. Much slower than version 1.1, which is what I've been using. The folks at Gold Disk say that they were more concerned with making a stable product than a fast one, and that on the next release they will concentrate more on performance. In the meantime, the new (new to me, at least) interrupt feature will let the user press the ESC key and interrupt a page redraw. Even with the slower redraws, the interrupt feature should make life bearable. Text editing is now much more bearable with the hot-linked article editor. I'll probably have more to say on this subject next month. ■

President's Notes

by Neal Kushner

Well this month we will be accepting nominations for officers of our group. There will be people contacting you to ask you to run for office and you should say yes. You should say yes because you see what is wrong with this group and want to fix it. You say yes because you have come to the meetings and have enjoyed the pleasures of the group and would like to repay the favor. You say yes because you know if you don't do it, it won't get done. What ever the reason you say it say yes when call to be on this years ballot.

Please mark on your calenders the following meetings:

This months topic is	Animation
May is	Utilities
June is	Word Processing and D.P.

Some people have already volunteered to help with the presentations but we could use more help. If one of these topics is familiar to you, and you could present something you are working on, or have worked on, please contact me.

Speaking of volunteering soon you will be contacted about running for office. Our group's elections will be coming up soon. This is your chance to change things. This is your chance to help the PCG. This is your chance to do something to support the group. When called think about it and run.

Once upon a time in the far off kingdom of Pittsburgh there was a computer users group...And there still is !!!! ■

Treasurer's Report

by Mark Snowden

The March meeting was very successful: We signed up four new members, and had a great day at the PCG Store. Scott Corley, Pam DeSimone, Victor Ilnicki, and Eric King joined the enlightened; Scott and Eric plugged into the BBS, and Scott helped out our Fred Fish collection, too - MANY THANKS! In a case of instant karma, Victor won the C64/128 raffle. Al Taffel won the Amiga prize, and Ron Kracht took home the 50/50 booty.

We had a surprisingly good turnout at the February meeting in spite of the rotten weather, and signed up four new members. Welcome! to Martin Sainsbury, Richard Guffey, Robert Duda, and Bernie Wiles. Richard and Martin also registered for the BBS. It was a good month for board members in the raffles: Marilyn Richards took the 50/50 prize, and John Mulcahy won the Amiga raffle; Bob Reichle won the 64/128 raffle. Rick Bilonick was elected to the open "at-large" position on the Board of Directors. Rick is the Amiga SIG leader, and has taken an active role in promoting membership by distributing the newsletter to many software and bookstores. This effort by Rick and other members has paid off in that two of the February new members heard about us through picking up our newsletter at these stores.

Computing at the Snowden house has changed dramatically since the last time I wrote a column. As a result of remodeling (anyone for a remodeling SIG? I thought not...), the Amiga now resides in a corner of the master bedroom, awaiting a yet-to-be-realized home in the basement. This forces a computer interface on my wife, who has developed a strong addiction to Tetrix. She now knows where the power switch is, and has even composed a letter using Prowrite. My son got a Nintendo for Christmas, and likes to play that with Dad. The result is less time on the computer for you-know-who. I did get Ami souped-up a bit for Christmas, though - up to 3 megs, and a badly needed replacement mouse (Golden Image Opto-mechanical - I recommend it highly if you need one). Multi-tasking takes on a whole new meaning when you've got some breathing room.

But back to business: We approved an added bonus at the last board meeting (free disk from our library and back copies of the current year's newsletters) for new members who join after the first of the year. This is retroactive to January 1, so if you joined after New Year's please see me at the next meeting. The PCG dues structure runs on a fiscal basis; that is, June to June. Many of you pay dues on an annual basis; ie. every January, or February. This results in us having to send out newsletters to members who are, technically, expired. Now, I believe that it is in the interest of our members, and therefore the group, not to strictly enforce this every autumn. But there has to be a line somewhere, and April has got to be past it. I am confident that I am caught up to the last meeting processing dues payments and resolving any problems. If your mailing label has a 6/90 expiration date, please renew this month so that we will continue to send you the newsletter and you can continue to participate in club activities. I think that in the last few months we have seen some fine benefits: excellent newsletter articles, and a consistently good disk-of-the-month are two that come immediately to mind. While these are put together on a volunteer basis, there are production costs and mailing costs involved and it isn't fair to the paid-up members to continue to carry expired members. Please pay your dues. ■

The Secretary

by John Mulcahy

The minutes for the PCG Board of Directors' meeting are as follows.

Mark Snowden acting in the Treasurer made his report. He had run statistics and forgot to calculate the current balance of the checking account that the PCG has. He also presented numerous reports on our expenses and income.

Marilyn Richards acting in the position of Vice President Librarian reported on the sales of disks to members, and the exchange of newsletters and disks. She had contatacted the authoress of the 1541 survival kit and to date had not received any response. She then requested an assistant to her position.

John Blasdell acting in the position of Director of Public Relations had nothing new to report, but was looking for magazines to send our information as a user's group to.

John Mulcahy acting in the position of Secretary, representing the Sysop of the PCG BBS (who just conveniently happens to be the same person as the secretary) reported on the cost of Fidonet echoes on the BBS and how to connect to them via the Amiga 500 running the BBS. Bob Agostino motioned to allow the BBS to start receiving the Fidonet echoes. John Mulcahy seconded the motion. Vote was unanimous in favor of the echoes. Motion by John Mulcahy to keep adult GIF's (Graphic Interchange Format, a picture that any computer can view) off the BBS. Motion seconded by Reg Ney. Heated discussion ensued for 15 minutes. Vote for the motion was 5-2. Board members voted for the motion were John Blasdell, John Mulcahy, Marilyn Richards, Reg Ney, and Mark Snowden. Voting against the motion were Rick Bilonick and Bob Agostino. Motion by Reg Ney to charge non-members of the PCG using the BBS a $5 fee per year for the use of echoes. Seconded by John Mulcahy. Vote for the motion was unanimous.

Richard Bilonick acting in the departmemt of Board Member at Large reported on the distribution of newsletters and the possibility of new places to leave the newsletter every month. He also raised the possibility of an assistant Newsletter Editor for Eric Kennedy.

New Business: Motion by Reg Ney to distribute to all new members to date until the month of June all the newsletters from the current Fiscal Year, distribute 1 free disk if they join in January, 1 if they join in February, and 2 if they join between the months of March and June. Motion seconded by Mark Snowden. Vote was unanimous. There was also discussion of providing a Laser Printing service to members of the PCG.

This concludes the minutes of the Board of Directors meeting taking place on February 10, 1991. ■

Secretary's Comments

by John Mulcahy

NOW for something new! This "section" of the minutes is called "Secretary's Comments". It will include any comments that I may have about the Board Meeting which I wrote so technically about. I am not commenting on the BBS because I plan to write a separate article about the BBS and the relevant Board Meeting discussions.

I WILL say that we are currently thinking about providing Eric with an assistant newsletter editor. This person would not only help Eric out, but would be his replacement when he cannot make the newsletters anymore. (Hopefully, this won't occur until 80 years' time!) Another immediate job of the assistant editor would include filling in for Eric when he can't produce the newsletter. If any of you are interested, let me know at this meeting.

It would seem that Marilyn is up late late late at night trying to assemble disks of the month and do her job as Librarian. She desperately needs an assistant to give her some assistance. To find out what that involves, ask her this meeting.

I really only highlighted Reg's proposal about the offer to new members and I would really like to get into some detail here because it IS a good deal. When a person joins late in the year, they only get a few months and then have to pay their dues again. This is often disconcerting to potential new users as they believe they are not getting their money's worth. What Reg is going to do is to give every new member who joins after January all the newsletters since September of that previous year, and then give them a free disk. When it gets to be later in the year, like March onwards, he is going to give them 2 free disks of their choice. It is an excellent choice and definitely is one of the better things that I have voted for.

Well, that about wraps it up for this month. Geez, I really appreciate your patience in reading my articles from month to month and I hope to bore you some more next month! ■

Meeting.info

by Reg Ney

Well, folks, here it is, almost one year since I last wrote an article for the newsletter! Thought ya' could get rid of me, huh?! Well I'm here to tell ya it ain't that easy! Actually, though, I thought that it would be somewhat longer before I would start writing again (two years of monthly articles can get to be a drag, if you know what I mean?) but, when Neal asked me to help out with the programming for the next several months, how could I refuse? Having been in his shoes, I know that it isn't that easy to get someone to help out, so here I am! Like it or not you're stuck with me again for a little while!

At any rate, this little column is supposed to relate to you what is coming up at the next meeting. However, I want to start out by telling you a little of what you missed at the last meeting (in case you didn't happen to be there. If you were there, please bear with me for a while.) Last month, Gary VanGelder and I had the pleasure of addressing the group on the subject of interfacing electronics to microprocessors and microcomputers. Gary demonstrated how to connect an Analog to Digital Converter (ADC) to the 64, and he displayed the programming that would be necessary to control such a device. He actually created a light meter with the electronics, and he talked about the various uses that could be made of such a device in controlling things around the house.

I also demonstrated connecting some electronics to both a chip level 8085 microprocessor system, and to the Amiga. While Gary demonstrated an ADC, I went the other way and connected a DAC (Digital to Analog Converter) to the systems, and showed how these devices could control such things as LEDs (Light Emitting Diodes), and, via the DAC output, how to control the speed of a motor. Both of these talks were somewhat technical, but, based on the comments that I received, I believe that both of us accomplished what we set out to do, and that was to demonstrate what could be done with computers beyond just plugging in a piece of commercial software and doing only what it allows you to do! So, if you missed the meeting, I believe that you missed out on more than just the meeting, and I'm not saying that just because I was one of the speakers.

But, now you are sitting there saying, "That's water over the dam, what do I have to look forward to this month?" My answer to that, of course, would be that that is a very good question! Actually, I would tell you to come and find out what goodies we have in store for you, and to help you make up your mind, here are a few tid-bits of what is in store.

A couple of months ago we talked about what we wanted to see at upcoming meetings, and we decided that April would be devoted to the subject of animating graphics, and that, dear reader, is just what we are going to do (barring some unforseen circumstance!!) In keeping with the spirit of "cultivating our own home-grown talent" we are going to start by having Tim Kracht demonstrate some of the animation techniques that he has used on the Amiga.

Tim, you see, besides being a member of the ***PCG***, is a computer science major at Ohio State University who has taken his "hobby" seriously by working toward a degree in animation! Tim has used ***Deluxe Paint III*** on the Amiga to put together some very interesting video works, and he has consented to tell us about how he used ***DPaint*** to put his work together, and to relate to us some of the techniques that he uses to make good animations.

Now, lest you think that we have forgotten the 8-bit users, Gary VanGelder (you notice how the same names keep cropping up??!!) and Sean Peck will team up to show you some very interesting graphic and animation work done on the 128 and the 64! Gary will talk about the ***Basic 8*** Animation and Paint Program for the 128, and he will show us what kind of enhanced graphics we can get from this framework. Gary will also demonstrate some PD (or shareware) packages for the 64 that allow for the development of some hi-res graphics. Sean will complement what Gary has to say by showing some very interesting animations on the 64 that may seem familiar to the Amiga enthusiasts!

All in all, I think that we have a very interesting program planned, and I encourage all of you to come and see not only the demonstrations, but an example of just what kind of collection of quality users that the ***PCG*** actually is! By seeing what others are doing, maybe you will be encouraged to step forward and show us just how good you are!

On the business side of things, at the April meeting, the Nominating Committee will be presenting its slate of candidates for the upcoming election, and will, no doubt, be looking for a "few more good people" (to steal a phrase!) to run for the various offices. We encourage you to support your club by volunteering to run for office. The pay may not be much, but, I assure you, the rewards can be great!

In closing, I would like to point out that the upcoming May meeting is in need of a few good speakers too! The topic for May is "Utilities", and I don't mean the electric or gas company! If you have several very useful utilities that you use all of the time on your machine, or if you have developed your own utilities, please volunteer your time to tell us about it in May. If you wish to be part of the program, please see me at the April meeting, or call me at home some evening (**before the Newsletter submittal deadline**!) and let me make you a part of the May goings on. Incidentally, you can also contact me on the BBS!

Well, enough is enough! See you on Sunday! ■

Minix...Continued from page 1

an early version. Since then Prentice Hall (the publisher) has packaged the software on diskettes, and with a User manual separately from the book, for various versions, with the current being 1.5. The book should still be considered necessary for fully utilizing and understanding Minix. Minix has been ported to other computer systems, such as the AtariST, Macintosh, Amiga, and soon SUN's SPARCstation. Minix has gained popularity, and has a dedicated Usenet newsgroup, and BITNET mail-list following across the world. The license agreement for Minix is much better than most software products. It allows unlimited copies to be made by educators for their classes, for example. Minix is not a complete replacement for advanced UNIX systems, like the A3000UX. It does not have such things as TCP/IP networking, or X-Windows, at least not yet....

The Distribution

The Amiga version of Minix consists of 9 floppy disks and the user manual. The first disk includes the program that boots into Minix from AmigaOS which is on a normal AmigaOS format diskette, the other 8 floppies are 'Minix format' disks (compatible with the Atari version) which contain the file system, utilities, compiler, and source code for the system. (The exception is the source code for the C compiler which is available separately.) There are included utilities for reading IBM/AtariST format disks when in Minix, and reading and writing Amiga format diskettes to and from Minix format disks. Amiga Minix includes most familiar unix utilities, like ls, more, cat, sh, compress, kermit, zmodem.

Amiga Minix can use binaries that have been created on other 68000 based Minix systems. (I'm using a shell called clam, that was compiled on an ST.) It can use a modem to dial out on the serial port, and print to a parallel printer.

Some Problems with Minix for the Amiga

Minix as distributed by Prentice Hall currently does not support any CPU greater than the 68000, so it most likely won't work on accelerated systems, including just a 68010. It has no hard drive support, so you have to manually mount and unmount floppy based file systems. The distributed version has some bugs in writing the floppy disks. (This is the first version of Minix which does not have a standard floppy controller chip to work with.)

Some Good News

I have been in contact with one of the Amiga Minix authors, and have gotten some newer versions to beta test. The latest version does run on the A3000, though it does not recognize the hard drive, or battery backed clock. Floppy behavior has improved. The same version works fine with my A500/A590 hard drive, and allows me to mount a hard drive partition and use that as my filesystem. It should work just as well with an A2091, though I haven't tried it, yet. When the authors are satisfied with the updates, they will most likely be freely available from the Usenet newsgroup, and BITNET mail-list. If you have purchased Minix, or are about to, contact me on the PCG BBS, and I will try to forward such updates to you.

Personally, I enjoy working with Minix, and learning more about the work of System Administration, and design of a message passing multitasking operating system.

Minix 1.5 for the Amiga is being sold by Prentice Hall.
(800)624-0023
Minix 1.5 for the Amiga (0-13-585043-6) $169.00

Minix is copyright Prentice Hall. UNIX is a trademark of AT&T. Amiga is a trademark of Commodore Business Machines. ■

PCGeos SIG

by John Blasdell

DID YOU KNOW . . . BSW was originally developing the MS-DOS Ensemble program in conjunction with IBM. The graphic interface that comes with the PS-1 is a run-time version of the kernal and Desktop.

Ensemble is getting decent reviews in the MS-DOS world. Yes, it's still missing "parts". It's about where Windows 2.xx was. Fortunately, the mags have been focusing on what it does, not what it can't do yet.

Library/Store: Marilyn has 2 recent disks (#61 and #63) with GEOS programs.

#61 has mostly non-Geos programs, but there are several useful GEOS utilities.

AutoClock is an auto-exec that presents a screen to set the date and time on boot-up before DeskTop loads. Why not just set the date/time from DeskTop? AutoClock works with AutoDate and *Calendar* Desk Accessory to provide an automated reminder system. I love it (and needed it!)

AutoDate should be on your boot disk *after* the AutoClock file. After setting the date/time, AutoDate will scan the Date Book (*Calendar* DA data file) and show entries for that day.

mLabelV2.5 is a label generating program. Trying to wade through the docs turned me off; the author's "sense of humor?" left me cold.

Move80Col is a screen utility for GEOS 128. I couldn't test it on my C-64; at least it's well behaved and didn't crash the system when I tried running it.

Ruler1.5 is an updated onscreen ruler. An earlier version of this DA, titled "ruler" and listed as V1.4 in the info box, was OK on vertical measurements but missed by a mile with horizontal readings. The horizontal readings now match the GeoWrite ruler, which matches 80 d.p.i. printer output.

FontDump III by Joe Buckley prints font files; you can't view them onscreen. I have another program titled FontViewer that works OK with smaller point sizes but crashes with 48 pt., 52 pt., etc. FontDump works fine with no crashes.

Disk #63 contains all GEOS programs.

GEO-Sleeve is a Paint Image file for 60 d.p.i. printers. Prints a cute 5.25" disk sleeve.

NewTools is a GeoPaint Desk Accessory. One of the hottest GEOS programs, this is showing up on many public domain and shareware disks, and you can easily get it from the PCG Store. Slant an object, rotate it 45 degrees, arch it up or down, make an arrow shape out of it, or a combination of these effects.

NewTools80 is the 128 version.

NewToolsDemo is a GeoPaint file showing some of the effects. This will be on display at the PCG Store table.

Disk Protect changes a disk to a Master Disk, Boot Disk, or Work Disk. This doesn't have anything to do with breaking the copy protection or making bootable copies; this changes a "flag" that allows GEOS to format a disk, drop files in the trash, or prevents these functions.

GeoKey locks files, unlocks them, or toggles the lock/unlock status of all files on a disk. I had a corrupted file I couldn't delete because it was locked. Calling up the INFO box crashed the system. GeoKey enabled me to "flip" the status of all files, then delete the corrupted one.

GeoKey80 is the 128 version.

GeoNim - game.

WriteMenu I couldn't figure what this did! Finally, I discovered it keeps the pointer from going off the side or bottom of the GeoWrite menu selections.

geoGIF converts a GIF (Graphics Interchange Format) data stream to GeoPaint format.

ROTPAGES needs a RAM Expander and an 80 d.p.i printer. Takes page files generated by Paint Pages utility, clips and rotates them 90 degrees, and prints them in "booklet" form.

RESCUE 128 reboots GEOS 128 from an REU. Yes, that's supposed to happen with GEOS as it comes out of the box, but it doesn't always know that. This is one more chance to save those files that live only in your 128's memory (that's true in more ways than one!)

GEOTICTACTOE V2.1 I hate to admit the computer beat me but . . .

PHOTOMOVER 1.0 moves scraps between separate photo albums.

geSidPlayer comes with files of Christmas music, including my favorite, "Grandma Got Run Over By A Reindeer". Q-Link has a large library of Sid Player songs in the Music Room Software Library.

Utilities such as the above and the thousands more available from Bulletin Boards, RUN and GeoWORLD magazines and other sources keep computing fresh and exciting. Ensemble will eventually offer more features, utilities and programs than 8-bit GEOS, but that will take many months. BSW hasn't released developer's material for the GeoWorks environment as yet, so 8-bit users can hope for more goodies before programming attention turns to Ensemble. Still, we should all be thinking about where our computing future will be best served. If your C-64/128 does everything you need, fine. However, don't get caught in a time warp. There are many people using typewriters who can't comprehend the productivity gains from modern word processing.

It's a hard decision - stay with the 8-bit, buy an Amiga or DOS compatible . . . what and when? Hardware prices are dropping, especially on 3rd party hardware such as monitors and hard drives. There's no blanket answer, but I think if you start exploring 16 and 32 bit computers you'll find some exciting possibilities. When the time is right - next month, 6 months - you'll have the answers that make sense to you.

GeoWORLD Magazine It's been ?? months since the last issue, but each new issue is worthwhile. Issue #25 is devoted entirely to 8-bit coverage, which I'm sure will change. You say there's nothing new in the 8-bit world? The ads in GeoWorld make it look like 8-bit is alive and well. It's GEOS that's alive and well! Hard drives, improved DeskTops, 4 color Postscript printing, and GEOWIZARD . . . GEOWIZARD looks like MultiFinder for the Mac!

The current craze is upping your RAM Expander to 1, 2 or more Megs. Working with a RAM expanded system is great - everything happens in real time, not siesta time.

GeoWORLD issue #25 will be at our March SIG meeting.

See you this Sunday! ■

Amiga Video Magazine

The Pittsburgh Commodore Group and the Amiga SIG are proud to present the **Amiga Video Magazine** at each monthly meeting. The Amiga Video Magazine is an hour long video devoted entirely to presenting news and information exclusively about the Amiga and Amiga hardware and software. This months video magazine is devoted to a thorough review of Newtek's Video Toaster (see Amiga SIG News for more details). See it Sunday, April 21 at 9:30 am. Past issues are available for PCG members for home viewing.

Amiga News

by Rick Bilonick

The February/March 1991 issue of Computer Pictures has two interesting articles on corporations that use the Amiga in video production. "Bausch & Lomb 'Toasts' Video" by Suzan Prince discusses the use of Newtek's Video Toaster at Bausch & Lomb. Hewlett-Packard is probably almost the last place you would expect to see Amigas being used. While Hewlett-Packard produces PC compatibles, it has chosen to buy Amigas to make multimedia training presentations for engineers ("Amiga Helps Hewlett-Packard Train Staff Via Video").

The Amiga was the subject of a February 13th New York Times story ("A Computer Becomes a TV Studio" by Eben Shapiro). The article discusses (what else), Newtek's Video Toaster. The article goes on to say the Amiga and the Video Toaster have stirred an unusual amount of excitement in both the computer and video worlds and that the Amiga "has a small but cult-like following among graphic artists and video producers."

I recently spent 4 fun-filled days in Manhattan, devoting two days almost entirely to attending the AmigaWorld Expo at the Hilton. The show was well attended and took place on two floors. There were a great many exhibitors and I spent hours just looking at the myriad computer demos. I greatly enjoyed asking the people that produce Amiga hardware and software about their products. One of the displays showed four or five minutes of "Back to the Future III" which was stored on a very large hard drive. You would swear you were watching a TV connected to a VCR. There were also demonstrations of DCTV, HAM-E, Scala (distributed by GVP), CanDo, Power Windows 2.5, Newtek's Video Toaster and many, many other products. Newtek had one of the largest booths with a live continuous demo of the Video Toaster in operation and simultaneously showing the video created by Penn and Teller (it's a scream). The show also had some producers of video equipment including JVC and NEC. Even without attending the classes that were offered, there was so much to see and do, it was difficult trying to decide what to do! The scheduled events and free seminars were well worth attending.

The next AmigaWorld Expo will be held April 25-28 in Berlin. If only the PCG could finance the trip!

The World of Amiga show in New York City will already have been held by the time this newsletter is distributed. Several PCG members were planning to attend. It should be interesting to see how it compares with the AmigaWorld Expo. I brought back many handouts from the AmigaWorld Expo that I'll have available at the April 21st PCG meeting at Duquesne. I also have several March 1991 AmigaWorld issues that are free to anyone that wants them.

Newtek said at the AmigaWorld Expo that the Video Toaster should be available for the Amiga 3000 within 6 months.

Confidential sources have said that Amiga 500's will be shipping with the new roms and Workbench 2.0 by June of this year.

At the PCG, we often here people complain about the way Commodore handles things. So it's interesting to hear how other computer users view other manufacturers. One of my favorite activities is attacking IBM. Apparently I'm not alone! I've always marveled at how a company with so many resources could produce such inept and mediocre computers and software (both PC's and mainframes - and unfortunately I've used both). IBM's answer to the Amiga's OS is called OS/2. It's supposed to make-up for Microsoft's abortion of an operating system known as MS-DOS. (It's hard to believe how many people suffer under MS-DOS!) IBM expected that by 1991, half of the MS-DOS world would be using OS/2. Apparently, these long suffering people are not willing to suffer OS/2. Very few copies of OS/2 have been sold, about 300,000 - which is very small considering how many people use MS-DOS compatible machines. If you ever tried using OS/2, you would quickly realize that IBM doesn't have a clue about what a graphical user interface is. It's very clumsy and requires 4-5 meg of memory just to load the operating system, let alone application programs. Version 1.3 is now shipping - which someone has said is great - for a 1987 operating system (I don't even agree with this statement). What have others said about OS/2? The March 13 issue of USA

Continued on page 15...

Amiga SIG

by Rick Bilonick

There has been some talk lately of starting an Amiga Programmer's SIG. This SIG would concentrate on sharing programming insights and tips for those interested in the more technical aspects of the Amiga. Anyone interested in seeing that this SIG is established should contact me either on the BBS or at the April 21st meeting. In order to establish the Programming SIG, we need a SIG leader.

This month's Amiga SIG meeting starts off with an hour long Amiga Video Magazine. This month's issue is devoted almost entirely to NewTek's Video Toaster. A short review of the history of the Toaster kicks off an in-depth look at the long awaited $1500 video appliance that turns any Amiga 2000 or 2500 (and soon 3000) into a broadcast quality video studio. Toaster installation is covered, along with a discussion of the Toaster Switcher, time based correction, character generation, and a brief look at the accompanying Lightwave 3D software for animation. (A future AVM will provide a more in-depth look at the Lightwave 3D software.) Several minutes of Todd Rundgren's entirely Amiga produced rock video are shown. Rundgren used 10 Amiga 2500's each equipped with a Video Toaster to produce the equivalent of a $1,000,000 rock video for a total of about $100,000 including the cost of the hardware.

Also planned for the April meeting is a demonstration of PageRender3D (Mindware) and Minix (Prentice-Hall). PageRender3D is a well designed 3D animation package with a very easy-to-use interface. Minix is a mini-UNIX package that provides a UNIX environment for any Amiga without requiring a 25 MHz processor, 8 meg of ram, and a 100 meg hard drive. Ed Berger will demo Minix.

Future Amiga SIG meetings will be showing the new AmigaWorld animation video and possibly the complete Todd Rundgren "Change Myself" rock video. ■

LASER PRINTING

PCG Member Special - 50¢ per unique page (quantity 1)
additional copies discounted - get 25 copies for only $7.50
50 copies for only $12.50!

See the article in this issue of the *PCG Newsletter* for more details.

Most of the popular Amiga, MS-DOS and Macintosh software packages are supported.
Typing, file conversion and/or layout services are additional.

I remember back when the PCG first started printing the *Newsletter* on a laser printer. Most everyone agreed that it was a good idea, that the *Newsletter* really looked great, etc. I also remember that there were several voices in the crowd suggesting that the PCG buy its own laser printer, so that the members could have access to it, (for a small fee, of course). That day still hasn't come, but it has drawn a bit closer. PCG members can now have their resumes, term papers, masters theses, fliers for their summer picnic, just about anything they want printed with laser quality. I would like to offer that service to you (for a small fee, of course). I approached Neal about this several weeks ago, and he presented it to the Board of Directors, and the proposal was well received. So now it's up to you. Is this something that you could find useful? I hope so. I think that the price is most reasonable, I can promise you that I'll work quickly to get your jobs done, and even "guarantee" that you'll be satisfied with the quality of the output. I've made arrangements with the Board and with John Mulcahy to allow you to send your files to me over the PCG-BBS. That way, as soon as I receive your check, I can mail the output to you. If you aren't in a big hurry, you could drop a disk and a check off at a monthly meeting, and pick up your output the following month. I want to be as flexible as possible with this, so that everyone can benefit from it. And yes, the PCG will also benefit, as I will be "kicking back" 10% of the money on all work submitted by a PCG member!

Here are the ground rules: I can handle just about any text file, but won't do any typing or layout work, (well, for a *larger* fee, I will; ask if you're interested), just straight printing. If you want to do layout, we'll need to stick to Amiga, MS-DOS and Macintosh files (let me know what package you want to use, and I'll let you know if I can support it). I can't do PostScript yet, but that will be available very soon. Later I hope to be able to add support for GEOS (PostScript output only) and possibly other 8-bit software. I'll charge 50¢ for each *different* page, so if you have a 10-page term paper, that's $5.00. Each additional *copy* of that page will, however be cheaper. Copies 2-10 will be 35¢ each, 11-25 are 30¢ each, and 26-50 are 20¢ each. Copies 51+ will be a flat 15¢ each. Postage will be $1.00 for each 50 pages (or less). Payment should be made by check, so if you upload to the BBS **mail that check**, I won't do anything except verify that I have your file until I have your check. If you want to mail a disk with a check, that's fine, too, I'll return the disk with the order. My address is **Chuck Bedekovich, 7 Augustine Street, Pittsburgh, PA 15207.** I really hope that this goes over well. I don't expect to make lots of money, just enough to keep this going, see if I can do it, and maybe expand it later if it works out. Thanks for your interest, and your business!

<<< Chuck >>>

The Amiga Librarian

by Neal R. Kushner

Well last month I asked for some help with obtaining more PD disks and Fish Disks and you guys came through. You can see by the list below that the list of earlier Fish disks we don't have is getting smaller. I could use some large donations of the latest disks to repay some of the donators back. If you can get your hands on the newest fish disk please bring us a copy.

This month is Animation and I will be putting together a list of animation and demo disks we have. So until next month, see you.

We are still trying to complete our Fred Fish library. We have all the disks from 1 to 403 except 232-233, 333-335, 338-341, 344, 347-349, 351-372, 374-376, 378, 380-381, 384-386, 390, 392, 394-395, 397, 399-401. If you can help us fill in the blank spots in our collection we will reward you with a disk of ours for a disk of yours. Thanks !

Disk 62 This disk contains a port of the popular UNIX game "Hack", done by John Toebes and the crew at the Software Distillery. This is version 1.0.3D.

Disk 63 This disk contains a port of the popular UNIX game "Larn", done by Edmund Burnette and the crew at the Software Distillery. This is version 12.0B.

Disk 321 DezHexBin, IconJ, Ifs, Planets, Turtle, UnixDirs, Whereis.

Disk 322 Gwin.

Disk 323 ColorTools, CZEd, LinkSound, Show.

Disk 324 ANSIEd, DiskFree, DPFFT, Mailchk, Tetris.

Disk 328 AnalytiCalc, Hames, RoadRoute.

Disk 329 CPU, DiskSpeed, Empire, FileSystems, OnePlane.

Disk 331 CRobots, Csh, Iff2Ex, LhArcA, LVR, NTSC-PAL, PatchLoadSeg, VirusUtils.

Disk 332 AniPtrs, DevPatch, Helper, K1_Editor, Kryptor, RevBut.

Disk 336 Car, FileWindow, MiniBlast, Sys.

Disk 382 CrossDOS, Msh.

Disk 387 BlitterSand, ExtFuncProc, GMC, H2I, MandAnim, Menu, NTSC-PAL, Wreq.

PRICES THIS MONTH FOR MEMBERS WITH CARD

Amiga disk of the month $3 1st, $2 2nd.

3 1/2" blank Sony disks DSDD $.80ea

If you know what you want please call and leave an order at 828-3505 between 6pm and 9pm or a leave a message on the PCG BBS to Neal Kushner by the Friday before the meeting at midnight. This will greatly help speed up your delivery.

Your Humble Amiga Librarian,
Neal R Kushner

■

Lemmings

A New and Different Game from Psygnosis

Review by Bill Raecke

[Reprinted with the permission of the Metroplex Commodore Computer Club]

And now for something completely different... Those words might have been spoken with this game in mind. Lemmings is not only a departure for Psygnosis, it is different from any game I have seen before. It is basically a puzzle game. A bunch of lemmings will drop onto the playing field, one at a time, and will begin marching toward the exit. And they will keep right on marching until they bump into an obstacle that causes them to reverse direction, or until they march into water and drown, or until they march off the side of a cliff and get flattened, or until they run into any one of a myriad of different traps that they will encounter on various levels of the game. Lemmings are not too bright.

Your job is to endow certain lemmings with special skills that will help all the lemmings to survive. The number of lemmings that appear on a level will vary, as will the number of them that you have to save in order to successfully complete that level. Each level has a time limit. The game can be played in any one of four difficulty levels: FUN, TRICKY, TAXING and MAYHEM. Each of those four levels has 30 puzzles to be mastered. As each level is completed, you are given a password so that you don't have to repeat levels you have already mastered. There is also a two- player game available that consists of 20 puzzles. In the two- player game, each player tries to rescue as many lemmings as he can. The game continues until both players fail to rescue any lemmings.

A Lemming

About two-thirds of the screen is taken up by the game play area itself. It shows a portion of the landscape to be traversed and shows the lemmings heading steadily toward the exit, blissfully unaware of the dangers that lie ahead. The view can be scrolled to the right or left by moving the mouse pointer all the way to the border. At the bottom right of the screen is a small area that shows the entire level and where each lemming is. (On this display each lemming appears as just a single pixel.) The main display can also be scrolled by pointing to the area desired on this small display. Across the bottom of the screen, in addition to the small display just

Continued on page 15...

Hard Drive Failures

by Tab Trepagnier

From the Newsletter of the Champaign-Urbana Commodore Users Group [With the permission of the Metroplex Commodore Computer Club]

Hard drives have become essential equipment within any professional computer. They offer high speed, high capacity, reasonably secure storage for the computer user. Once properly set up, they are almost completely transparent to the user. With all of these positive feature, there has been little need to delve into the inner workings of these devices and how it might affect the end user. But a hard disk failure can wreak havoc on an organization which suddenly can no longer access critical data files, etc. Hard drive failures are not to be taken lightly.

When it comes to preventing hard disk failures, existing information is sketchy and ambiguous to a fault, with very few exceptions. Most of the articles I have read on the subject assume the computer user has absolutely no technical knowledge about his system. Therefore, the authors present conclusions or advice without any information to back up their positions, leaving their readers to accept their advice on blind faith. Advice like:

Turn off your computer every night to give your hard disk a rest.

Leave your computer on all the time to minimize transients on the system.

Which to do? Why should you do either one? The articles I have read on this subject have been conspicuously silent on the basis of their advice. With this in mind, I felt it was time to apply a little reliability engineering analysis to the workings of the drive and see what shakes out.

Parts Of A Hard Drive

A hard disk drive is a remarkable piece of engineering. Within one small box is a highly polished platter spinning at 3600 RPM holding millions of characters of information. The information contained on the platter is read by a very delicate magnetic head attached to a very precise positioning mechanism. All of this has to work every time. While there is error correction built into the disk controller card, this can only work if the drive is inherently reliable. No error correction system in the world can compensate for junk.

The Disk Platter -- As stated above, the platter is a highly polished disk coated or plated with the magnetic coating. This platter rotates at 3600 RPM at normal operating speed. Except on some laptops, the platter is always spinning when the computer is on. At a distance on one inch from the center shaft, the platter is moving at 31.4 feet per second (about 21 MPH). At the outer edge of a 5.25-inch platter, the speed is 82.5 feet per second (55 MPH).

From a reliability viewpoint, the areas of concern are the suspension and the head-to-platter interface. Because of the precision required, hard disk platters are almost always made of metal. This makes them fairly heavy, requiring good bearings to support that weight at the running speed. The head-to-platter interface is of special concern. Malfunctions here are the dreaded "head crash".

When the hard drive is first started, the head is in physical contact with the platter. Ideally, it should be laying in a special area called the "landing zone". This is an area of the platter on which no data will be written. Any damage caused by the head scraping the platter in this area will not affect the user or his data. As the platter accelerates, a layer of air drawn around with it by surface tension passes the head like a wind. Before the platter reaches full speed, this "wind" will cause the head to "fly" a few ten-thousandths of an inch above the platter. This is still close enough to read the magnetic impulses in the coating. A "head crash" is caused when the head touches the platter in a data-bearing area while it is turned at full speed.

This is the reason why you should never shake or jar a computer containing a hard drive while it is in operation. Because of the speeds involved, when the head touches the platter, magnetic material can be rubbed off from the platter. This is your data, now in the form of iron oxide powder floating around within the drive casing. There is no known way to recover its contents.

Drive Motor -- The platter is driven by an electric motor. Its speed must be very precise to allow the electronics to accurately anticipate when data will appear at the head. The areas of concern are the same as for all electric motors. The motor is made of coated copper wire wound around iron cores. The center rotor turns at 3600 RPM and must be properly supported with bearings. Because this is a moving part, it must have a reliable lubrication system to sustain continued use.

Head -- The head is a miniature equivalent of that used in a tape recorder. It has to be small and light enough for it and its suspension to fly when the platter is turning. It moves laterally across the surface of the platter. It must detect very faint magnetic impulses and transmit them accurately to the electronics for amplification and conversion. The primary concern there is its role as the other half of the head-to-platter interface. Other parts, like the head suspension, almost never give trouble. There is usually a head for each "surface" of the drive, all moving in unison. So a 2-platter drive will probably have four heads.

Head Position Mechanism -- The head is sized to read one track on the platter at a time. Depending on its width, there can be any number of tracks on a surface. The head position mechanism is responsible for laterally placing the head to read the desired disk.

Two methods of head placement have become popular. The first (and oldest) uses a special motor called a stepper motor. This is a motor which rotates in fixed increments rather than a continuous circle. Depending on the precision of the system, each step may be one track or a half track.

The other method of head positioning is the "voice coil" mechanism. This works like the voice coil of a speaker, where the electric current pushes the mechanism away from a magnet, and a spring limits that motion. By controlling the current, one can accurately position the coil a set distance from the magnet. This is the newer approach, and is somewhat more precise since no discrete steps are involved. In drives with stepper motors, the motor itself is the primary concern. The primary concern in the voice coil system is friction. This system involves moving parts, and like the motor, the bearings and lubrication system must be designed for long-term use.

Electronics -- The current provided by the head when reading the disk is a very tiny fraction of a volt. This is nowhere near enough to communicate with the rest of the computer. Electronics are provided to amplify the signal read from the disk. The error correction system is contained within the electronics package. It also programs the head to write the data to the disk, bit-by-bit. Although we send bytes of data to the disk system, the data is written as individual bits to the platter. The electronics system is responsible for converting our data bytes to bits in the proper order prior to being written to the platter, and for reconstructing those bits into the original data bytes for use by the rest of the computer. There are no moving parts in this system. The items of concern are those of all electronics: over/under voltage, voltage spikes, and component failure.

Modes Of Failure

OK. You didn't want to go into the hard drive design business. How does all this apply to the end user? In general, every subsystem listed above will be most vulnerable under one of three states.

Runtime failures -- The motor and platter system will wear according to actual runtime. Bearings in the motor and those supporting the platter have a finite life span. Leaving your computer on overnight will double the duty on these components. The motor windings warm up slightly as it runs. As other components (like bearings) fail, more power will be required to maintain speed, causing the windings to get that much hotter. If you never turn off your computer, these windings never get to cool down.

Start-stop Failures -- The electronics and the head-to-platter interface take their most severe load during start-stop cycles. With the electronics, each start subjects the components to a voltage surge which, over time, will shorten their life. Each start begins with the head in contact with the platter, causing a rubbing wear until the heads start flying. This is repeated when stopping.

Usage Failures -- The head positioning mechanism doesn't do anything when the drive is just running. Nor is it particularly sensitive to surges. Its wear is a function of usage. If you use a lot of software which maintains its data in RAM, the workload on the positioning system will be light. But if you use something like Dbase, which reads and writes to the disk constantly, this subsystem will get a read workout.

History Conversation with people whose career is repairing computers indicates that the three most common causes of hard drive failure are:

1. Motor failures, especially among half-height drives. This is the cause of 50 percent of all hard drive failures. Most of these are failures of the drive motor, but some failures of the stepper motor of the head positioning mechanism were also observed.

2. Electronics failures. This is the cause of about 30 percent of the drive failures.

3. Media failures, mainly due to wear and loss of magnetic susceptibility. This was the remaining 20 percent of failures. Wear was most evident in heavily used areas of the disk, like the File Allocation Table (FAT) and directory of MS-DOS computers. This is why the Amiga scatters this information all over the disk; to minimize wear from repeated reading of the same track. This is the most important data contained within the drive. Loss of susceptibility was more random in distribution across the disk surface.

The Bottom Line Since the primary cause of drive failures is motor failure, maximum reliability would be achieved by turning off the computer at the end of every work session. Motor wear is related to runtime, so eliminating unnecessary runtime would minimize this wear.

This only improves your odds. Note that the second highest cause of failure was electronics failures. This is almost certainly due to startup transients. But the somewhat higher failure rate of the motors means that you would be improving your odds by turning the computer off when not in use. Lately, hard-drive "tuneup" software has appeared. These can be very valuable in protection you data, especially from damage such as media failure. They are not expensive, but can add years to the life of your hard drive. Highly recommended, with one caveat. These programs work strong magic on your hard drive. Be certain to obtain a backup of the entire drive before turning one of these loose in your computer. Disks can be reformatted, programs can be reinstalled, but the fruits of your creativity can never be replaced. ■

Disk Structures and Data Optimization

by Larry Lack

From the Newsletter of The Amiga Users of the Heartland [This article is published with the permission of the Metroplex Commodore Computer Club of Dallas, TX with whom we exchange newsletter disks.]

Ever wonder how information is stored on our little disks? Do you use a floppy optimizer? Do you know what one is? Do you care? If you don't use one, you may want to round one or more of them up and give them a try. If you don't know what they are and why they were invented in the first place, read on. If you don't care, who cares if you don't care?

From the minute I first used one, I thought, "This is pretty neat." But it wasn't long before some new improved models came out and I got to thinkin' (it happens spontaneously on rare occasion), "I know which one I like to use, but which one actually works the best?" At the moment I have three FD optimizer programs which we'll explore a little later on in the show. But first we'll explain what happens at the disk level which necessitates an optimizer in the first place. Right after a word from our sponsor. ["We don't have a sponsor, Larry"] Would everyone please donate watching one Twin Peaks commercial for me?

First a simple analogy. Each of you has a junk drawer, don't you? Ours is in the kitchen. When we first moved in, the drawer was designated (formatted) as the junk drawer. Of course it was empty and easy to place objects in (write to) and retrieve the objects (read) from. Alas, before long our junk drawer overfloweth. What to do? Make another junk drawer? Yeah, right. Let's organize (optimize) the junk! Now we can once again place and retrieve stuff in the drawer. After awhile, alas again, it gets messy. So we reorganize. And we notice that if we never remove/replace anything from the drawer (delete/write), it stays in order. But that's not what a junk drawer is for. And that's not what a "work" disk is for.

In a real "disk" world sense, it is much more complicated. But leave it to me to simplify the facts to the point of obscurity.

First some ground rules. Any attempts at optimization should not be made on copy-protected disks or any non-standard DOS disk. Secondly, the current versions don't know how to deal with errors on either the source or destination disk.

How Disk Information Is Stored Our 3-1/2" floppies are formatted to comprise circular cylinders numbered 0 to 79. Each cylinder has an upper and a lower track. Each track is further broken down (at the time of formatting) into 11 sectors (blocks are the same thing). Each sector has room for 512 bytes of data. So where are we? About to figure out how much information a disk is good for. [Note: Some knowledgeable people refer to tracks and cylinders as being the same thing. Some say a track is half a cylinder, i.e. just the upper/lower part. I'm not choosing sides, just stating the facts.]

80 cylinders x 22 sectors = 1760 sectors 1760 sectors x 512 bytes per sector = 901,120 bytes per disk.

But you don't get it all! About 50K is reserved for, uh, uh, well it's just reserved, OK?

Types of Blocks (Sectors, remember?> There are five types of sectors (Blocks, remember?). They are: 1. Root block 2. User directory 3. File header 4. File list 5. Data block

Right in the middle (cylinder 40, head 0, sector 0) is where the ROOT BLOCK is always stored. The root block is the most important block, because it contains the name of the disk, time of creation, time the disk was last written to, a hash table (or chart or list), and the bitmap pointers. The hash table is a list of entries for the root directory. The root block contains the bitmap flag (valid disk or not) and entries for bitmap "pages". This maps out the entire disk for blocks (sectors, remember?) which are free (usable) or in use. [The bitmap is cached in memory and sometimes may not get updated. When you write/delete a file, the BitMapFlag is set to invalid until it can be updated and rewritten to the disk. If the flag is "up", it indicates an invalid bitmap. The operating system then loads and runs a program in your l: directory called Disk-Validator. Disk-Validator hunts down all the used sectors (blocks, remember?) and creates an accurate bitmap.]

If you've noticed your Amiga being able to keep track of two disks having the same name, they don't have the same creation time. If you want to trick DOS, make sure the disks have the same name and creation time. Do this at your own risk!

The USER DIRECTORY block is similar to the root block. It is something created indirectly when you make a directory. There will be one for each directory you create.

A FILE HEADER block contains information about the file, except the file data. Here you find file name, creation time, size in bytes, protection bits, and the file comment. Also located here is a list of all the blocks for the file and a pointer to the parent directory.

The FILE LIST block is an extension of the File Header block. If the file is really large (i.e. contains more block pointers than can be fit into the File Header), there will be a pointer to a File List block as a continuation.

The DATA BLOCK is the real file information. Wow! We finally got to the meat. Here is where the actual file information is stored. But you don't get all 512 bytes (with the old file system anyway) because we need a pointer to the next Data block. Wait a minute. If there is a pointer to the next data block here, why do we need a block list in the File Header block? Just for redundancy. If the File Header block gets destroyed, this pointer can rebuild the file. It makes it pretty hard to lose a file this way (file reconstruction will be future article?).

Some other information is also stored in the data block, like block number, number of data bytes, checksum, etc. In the FFS (FastFileSystem), the entire 512 bytes is used for data by eliminating the pointers, checksum, etc. This allows for quicker access and about 5% more usable disk space.

More (undocumented) block types. There are two. 1. Boot Block 2. Bitmap Page

The BOOT BLOCK is actually two blocks, and they are always located at cylinder 0, sector 0, heads 0 and 1. This is where the "bootstrap" code is located. When you boot up your Amiga, these blocks are checked, and if they contain executable code, it is loaded and run. Normally this is for the purpose of bringing up a WorkBench or Shell environment. However, some commercial programs use special bootstrap code to bypass the normal operation of the computer. If you boot up a protected game it won't be needing many of the normal supporting files needed by you or the operating system such as printer drives and DEVS: assignments. The C: command, Install, will make a bootable disk for you by writing to the sectors all the necessary information. It will be up to you to determine what other files you need on the disk.

The other undocumented block is the BITMAP PAGE. A pointer to the BMP is contained in the root block [some systems place this in a certain location -- that is fine for quick location but can be a limitation with very large storage devices if you run out of bitmap]. Sometimes the BMP is called the File Allocation Table (FAT) or Block Availability Map (BAM). As I said earlier, the BitMap contains the list of usable (free) blocks. At least four blocks are always allocated as "in-use". The Root block, the two Boot blocks, and the BitMap block. There may be more if you format the disk with the WorkBench icons and TrashCan directory.

Where Were We? Oh, yes. Optimization. Organization. Neatness! As you delete and write to a disk, the DOS keeps track of which sectors are free and in-use, but that isn't enough. Just because you are able to throw more stuff into the junk drawer, doesn't mean you are able to find it quickly. One important fact before we continue. Amiga disk I/O (Input/Output) is track oriented. That is, if asked to read a sector (block, remember?) from a certain track, it reads the complete track while the head is there. This can be an advantage if the position of the file is wholly located on the track. And while we're at it, if the file is large and it occupies several tracks, let's put them in some kind of order to minimize head movement. That is, if the head has to position itself over two tracks to read the complete file, let's make them tracks 335 and 36, not 1 and 73. One more time. A track has room for about 5.5K of data. If a file happens to be 5K long, let's try to put that information sequentially on ONE track since if even one sector of the track is for our file, it will read the whole track anyway. Don't make the head search all over the disk for one measly 5K file.

Basic Options 1.The files can be written in the same order as the hash chart. The Dir command follows the hash list so it will display directories faster. Also validation time is shortened. 2.a) Place File Header blocks near the Root Block. This will speed up directory reads. b) Place Data Blocks behind Header Blocks. This will enhance the loading of large files.

That is to say, the entries in a directory should be close to each other on the disk to minimize head seeking. To optimize WB icon presentation times, the *.info file needs to follow each file header.

Something to think about for a future DOS would be a header entry indicating the last time a file was read from, not just written to. This would indicate a file the user load a lot, and therefore needs to be kept handy as possible. Then you want all the files in that directory to spread out from the directory entries such as to be as close to the "sub-directory cluster" as possible. Of course the most recently used should have least seeking to do. But we do not have and entry in the FileHeader that indicates the last time the file was read. And that's the most important item for the optimization. best you can do is most recently written. Of course all the blocks in a file must be contiguous in ascending block order to minimize load times.

Anyway -- the bitmaps tell you nothing about the fragmentation levels on the disk. And all other things being equal, creating new files on a fully compacted disk will be closer than one that keeps the largest open spaces spread around the disk according to most recently written directories. (That trick avoids the seeks on the new files that would otherwise get read big with a large disk.)

That is no small project -- at least to get it up to a level that would leave me fully satisfied with the cleverness of the hack.

AmigaDOS tries to place the Header block and the first Data block behind each other near the Root block. This works well enough for the loading of small files.

Trials and Tribulations I started out to make a comparison chart using a specially prepared test disk. FastDisk, DiskOpti, FlashDisk, and the Copy command would be compared. On this disk I made four directories and placed a large program in the root directory. In one of the directories I copied 100 icons. Another directory was used to fill up the last bit of disk space. Then I deleted and rewrote. Over and over and over again. The disk was a mess.

Then remembering that these programs like lots of memory, I used a special startup which left me with little more than a CLI and a dir util, but some 900+K of free memory. I didn't want anything to slow down the programs or cause them memory limitations.

But alas, FastDisk stuttered. I can remember using it long ago and it not working on disks with lots of small files and little memory. Oh well. Then FlashDisk sank. And I use it all the time! Maybe 100 files in a directory was too many? DiskOpti worked fine enough though. Of course the Copy command worked.

Modify the test disk by limiting the Icons dir to 75 files. Still a no-go with FastDisk and FlashDisk. Limit the Icons dir to 50 files. They still won't cooperate. Then I limit it to 40 files, the same number as in my C: dir. And they still won't work! (Editor's note: The obvious difference here is that the test is of 40 ICONS not just 40 programs.) The total number of files was compatible or fewer than what I normally optimize on my disks. Very confusing. Each time the disk to be copied onto was formatted (with no errors). The test disk and its backup appeared to be normal in all ways. At any rate, after about 25 rounds, I got very bored sitting here with a stopwatch watching for a "finished copy". So there ain't no chart. Some conclusions that I drew were that while a plain "Copy All" was slow (10 to 11 minutes), the overall directories and loading weren't too bad. In some cases better.

While an optimizer makes a fairly quick copy (on the order of three to four minutes), they aren't smart enough to always give you what you want. What would be nice is if they asked you for specific programs and directories that you wanted to give preference to. Put them at the head of the list, so to speak. At any rate, I don't want to sound negative with regard to the optimizers. FastDisk was the first I had, and I used it until I got DiskOpti. Which I used until I got FlashDisk. And I like it. And it has always worked. Until now.

Hey! I can still do a chart! Of the features and options! Yeah, that's the ticket. See chart 1.

Special Features DiskOpti by Claude Abraham will make a list of files, block numbers, and all that good DOS stuff and either save it to disk or send it to the printer for you to read on the john. DiskOpti has yet to ever fail for me.

FastDisk V1.5 by Torsten Stolpmann could use an update. Maybe it's already out there. Not recommended on 512K machines.

FlashDisk by Curtis Palmer has a nice intuition interface with lots of options which you can change on the fly. It will work with one drive or two and a minimum of memory. It always tells you where it is in the process with lots of messages. I use it on my work disks with a history of no problems.

There are commercial optimizers such as BAD (Blitz Amiga Disk) and Tune-Up which will also work with hard drives. I'm not aware of any PD programs that work with hard drives, but it may be worth your effort to look for some.

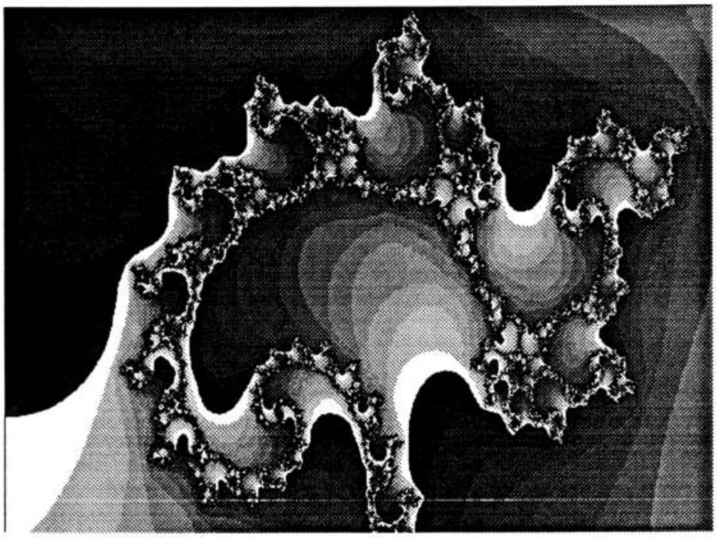
Some tools you will find useful are DiskView and DiskX. DiskView by Claude Abraham shows you the scattering of files on a floppy.

One last note on optimizing a disk. Since the normal DOS writes things in the order specified, you may use a dir util and selectively copy root files and directories (and the files contained therein) in the order you want. Be creating a directory and then copying ALL the files into it, it places all the data close to each other. This will put files "at the head of the list", so to speak. It will write files from the center of the disk outward (most of the file requestors alphabetize, not the DOS). Since the first files written are the quickest files to read, you may use it to your advantage. Of course this will be very slow and less than automatic. As soon as you change your mind and delete of write new files to the directory, the physical order on the disk can change drastically. And needless to say, the movement of the head will increase, causing slow reads/writes.

Note: This article still leaves one unanswered question: "What is the best way to optimize a disk?" In the July, 1989 issue of the MCCC News, a test was run comparing the AmigaDOS Copy command, FastDisk, and DiskOpti. The results showed AmigaDOS to be the clear winner in building directory structures that could be quickly scanned. (Dir commands were about twice as fast.) FastDisk and DiskOpti are much better than AmigaDOS in building disk structures that can load programs quickly. (AmigaDOS is about 1/3 slower.) And FastDisk is the clear winner when it comes to building a disk structure that will display icons quickly. (AmigaDOS takes twice as long and DiskOpti takes three times as long.)

Chart 1

Program	FastDisk	DiskOpti	FlashDisk
Size	13K	9K	22K
Auto-Format	Yes	No	Yes
Verify Option	No	No	Yes
Drives Required	2	2	1 or 2
Interface	CLI	WB (min)	WB (nice) ■



This picture and the cover picture are examples of Fractal Graphics, *a type of computer-generated graphic based on a mathematically defined set of numbers. The most popular of these sets is the* Mandelbrot *set. There are several Amiga programs available that generate graphics such as these, such as Mand, MandelVroom, MandFXP, MandZ, and Math Vision.*

Classified

NEW COMMODORE C64C COMPUTERS FOR SALE

New C64C computers for $75 each. These are little-used floor demos with full factory warranties and GEOS. Call Al Taffel at 854-4898 or leave a message on the PCG BBS.

NEEDED

Dead C-64 power supply. One of the club's power supplies has a broken plug (the one that plugs into the computer) and we need a donated power supply so we can scavenge the needed part. Please bring to meeting, leave at PCG Store table. Thanks!

Stores Displaying PCG Newsletter

The following stores carry products of interest to PCG members and provide an outlet for our newsletters:

B. Dalton Books (South Hills Village Mall) - Books, magazines, and Amiga disk magazines.
Border's Books (Norman Center II - near South Hills Village) - Books and magazines.
CDR Systems (Washington St., Swissvale, PA) - Amiga hardware, software, and magazines.
Pittsburgh Computer Store (Rt. 51 near Century III Mall) - Amiga hardware, software, books, and magazines.
Waldenbooks (South Hills Village) - Books and magazines.
Games and Gadgets (Century III Mall) - Amiga, C64/128 software.
Electroniques Boutiques (Ross Park Mall) - Amiga, C64/128 software.
Babbages (South Hills Village) - C64/128 software.
Babbages (Ross Park Mall) - C64/128 software.
Micromaster (Aliquippa, PA) - Amiga hardware and software.
Second Childhood (Beaver Falls) - C64/128 hardware and software.
Carnegie Libraries (all branches) - PCG Newsletter.

Loopz--The Most Addictive Game Ever

by Harold Williams

[With the permission of the Metroplex Commodore Computer Club]

Mindscape's newest game, Loopz, is advertized as "The most addictive game ever!". They may be right. Games like Shanghai, Ishido, PipeDream, and Tetris have all received more than their fair share of my Amiga's CPU. But none of those games captured the attention of my entire family like Loopz.

Loopz comes on a single non-copy protected disk with a twenty-five page manual. Loopz can be installed on a hard drive. In fact, this is the simplest installation you will ever find. Just pick up the icon and drop it in a drawer. This is the way it should always be done on an Amiga! Loopz does use a manual based copy protection scheme. The game can be played using the keyboard, mouse, or a joystick.

Loopz is a fairly simple game concept. Various geometric shaped pieces (much like the game pieces in Tetris) appear one at a time on a playfield. The pieces must be played before an on-screen time bar runs down. The pieces can be rotated before being placed on the playfield. The object is to connect the pieces to make a loop. When a loop is made the pieces forming the loop are removed from the playfield. If you cannot (or do not) place a piece, one "life" is lost. When three lives are lost the game ends.

There are three game variations called Game A, B, and C. Game A is the simplest. Game A offers ten levels of play. The higher the level the faster the timer. You win an extra life each time you complete twenty-five loops. Clearing the screen of pieces adds bonus points to your score. The Game B variation has been the most popular on my machine. Game B starts at level zero and progresses to the next higher level each time you complete ten loops. You still receive an extra life after each twenty-five loops. Clearing the screen doesn't add bonus points but instead takes you to a bonus level where you can earn bonus points. The bonus level plays like the standard game except completed loops are not removed from the playfield. Another type of bonus screen can be played if you complete a loop that scores enough points to equal or surpass a target score that appears on the screen during Game B play. This bonus screen is basically like Game C. The Game C variation is quite different. At the beginning of the game a completed loop appears on the screen. Some pieces are removed from the loop one at a time. Your goal is to reconstruct the loop. Game C uses a level password scheme to allow you to start the game at five screen intervals once you have been given the passwords.

Loopz also has two-player options. The two player Game A is a competition to score the most points. Both players place pieces on the play field simultaneously. The player that places a piece that completes a loop receives the points for the loop. When all of one player's lives are lost the other player continues playing, but the difficulty level increases rapidly. If you lose your three lives first you usually don't have to wait long for the game to end. The two-player Game B is a cooperative game. The two players take turns placing pieces on the playfield. The players share three lives and share one score. My wife, Judy, and I have spent several hours playing this variation of Loopz.

The graphics, music, and sound effects are outstanding. You can select from three different tunes to be played in the background. The music and/or sound effects can also be turned off.

Loopz does have a few minor shortcomings. Loopz does not multitask. I know most games don't, but I really appreciate the ones that do. Loopz does not offer a "quit" option -- you have to re-boot. Again, lots of games behave this way but this is not the right way to do things. Loopz insists on keeping high scores on a floppy in DF0:. I have Loopz on my hard drive. I don't want to scramble around to find a special save disk. Actually, I've never been able to get the save high scores feature to work. It requires a strange series of special control codes to activate the process and I have never managed to do the right thing. It would all be a lot simpler if the scores were simply saved in the directory where the game is stored.

I've had Loopz for two weeks now and it has been played every day by either myself, Judy, my son or my daughter. Most days it has been played by all of us. Several games have been very popular with one or two members of my family. But, no other game since Shanghai has attracted the interest of my entire family like this. Loopz gets a big thumbs up! ■

Pagestream 2.1

by Bill Raecke

[This article is published with the permission of the Metroplex Commodore Computer Club of Dallas, TX with whom we exchange newsletter disks.]

It's only been a couple of months since my last review of PageStream. Version 2.0 was released late last year and a review appeared in the October issue of the MCCC News. Since I produce this newsletter using PageStream and since I am convinced that there is no better desktop publishing software available for the Amiga, everyone will have to put up with my periodic reviews when upgrades are issued. But this time around, since the last review was so recent, this will not be a full review. Instead, I will just cover some of the major enhancements and fixes since the last release.

Before I get into all that, however, I need to tell everyone how this upgrade arrived. As with most PageStream upgrades (PageStream 2.0 excepted), it arrived in the mail three days ago. There is no charge, no card to send back, nothing. Just a free upgrade without asking. This is customer support the way it ought to be. The only charge this time around is for a new, completely re-written manual. The software is perfectly usable with the old manual, but the new manual (two volumes and a quick reference card) promises to be easier to read and more complete. It is $25 to all registered owners who want it.

One of the major advantages that Professional Page has offered over PageStream is better color support. (Since this newsletter is completely black and white, this hasn't mattered a great deal to me, but it is a major drawback for anyone working professionally.) Panatone is considered the standard color matching process in the industry. PageStream 2.1 now supports the CMYK color model. (The CMYK model is a method which defines colors in terms of their Cyan, Magenta, Yellow, and Black components.) By purchasing a Panatone process color selector from Panatone, Inc., colors can be defined with their CMYK equivalents.

The other major enhancement in PageStream 2.1 is the addition of more graphic import modules. The most important of these (right now) is the ProDraw module. This allows the importing of structured clipart from Professional Page's companion product, Professional Draw. (Structured clipart, for those who may not know, is artwork which consists of mathematically defined lines or vectors rather than a series of dots as in bit-mapped clipart. This results in a much higher quality of output since it eliminates "jaggies". See the companion clip for an example.) The most interesting thing about the implementation of this feature into PageStream is the fact that, once imported, the clipart can still be modified from within PageStream. This is a trick that not even Professional Page has been able to master even though ProPage and ProDraw are companion products. Also added are a GIF import module and a DR2D import

Continued on page 16...

Perfect Sound 3.0 Review

by Ehran Bradman

From the Newsletter of the Amiga Users of the Heartland
[With the permission of the Metroplex Commodore Computer Club]

I must tell you that I refer to the left and right output of the speakers as "tracks". This is probably not correct; I just call them that. So, please try to bear with me for the next ten minutes and fifteen seconds.

The Basics I found PerfectSound 3.0 a terrific bargain for $69.95. The one thing that attracted me most was the delightful price. Included in the package are a sound digitizer, the PerfectSound 3.0 editing and sampling software, and an instruction book. The only other things you will need are a microphone and an amplifier. Included on the PerfectSound disk is a public domain directory that includes a sound player that may be installed in the c: directory of WorkBench. This sound player is the best one I've seen yet. It is the easiest to put in the startup-sequence.

The program helps a lot if you are into making video-games with Shoot em' Up Construction Kit. It helped me make a yipping dog for Chopper-Chihuahua and a whirring mosquito for Disateroids, two games I'll have at the next meeting.

Some of the neat things in this program are the graphic displays. The whole process of recording and rearranging is based on graphics displays. The buttons also make it a lot more fun to use, not that it's boring anyway. "Echoes" are easy to make: just mark an area, then press the Paste button, then mark the area to paste it in. Voila! Instant echo! You can fine-tune your range by using the magnification spots, two rectangles in the center.

The one thing that troubles me about digital sound recording is the memory it uses. For example, each sample takes on byte; a sample rate of 10,240 means that for each second of recorded sound, 10K of memory is used.

Stereo Sound Stereo Sound is easy to accomplish if you use one simple technique: using two cables when you hook it up, place both cables in before you turn on your machine. If you don't, you will receive a considerable amount of interference in either the left or right track. There is a simpler way to make stereo, but it prevents you from making two tracks of two different sounds. If you wish to make a "talk show" or a mock-up of two arguing senators, you must record one side at a time, being sure to use roughly the same amount of time for each recording in the process. Then, after you've done the two independent tracks, select "CREATE STEREO" from the EDIT menu. Try to make the longer sample the first track. This will help even out any differences. Click on the side you want to be the left channel, then the side to be the right. Simple, eh? The process is reversed for breaking up stereo. When recording in stereo, you must have a sampling speed of 14,000 Hertz or lower.

Creating IFF Instruments To create an instrument you must first clear out all samples from memory (saving the ones you want, of course!). Be sure the recording speed is 8363, then record the sound you want to become an instrument. Go to the INSTRUMENT menu and select "CREATE INSTRUMENT" and follow the instructions. To create different octaves for the instrument, you must highlight the sound you are making the instrument from, then go to the INSTRUMENT menu and select :Freq=Freq/2". When you are done, select "MAKE IFF INSTRUMENT". If all goes well, you should be asked for "SamplesPerHighCycle" (this must be a multiple of 2). Save it under the name you want the instrument to have.

Some Special Appliances There are some really terrific items in the EDIT menu. There is a LP (Low-Pass) filter which, when selected, will eliminate all frequencies above a specified range. It is extremely time consuming to use, though, especially for long samples. There is a "FLIP RANGE" device which will reverse the marked range so that when you play it, it will be backwards.

In the OTHER menu there is an OUTPUT FILTER selection which will start to remove any frequency above 4 Khz, and completely remove anything at 7 Khz. The problem is, only the A500 and A2000 have the ability to turn this function off.

There is also a way to make single tracks sound as is they were in stereo. First mark the whole range that you want to blend, then select the "PASTE" button. PerfectSound will ask you for an insertion point. Place the insertion point at the beginning of the sample you want to blend it with, then click the mouse button. It should take a while. Doing this to two samples might cause a little bit of distortion between the two. This is normal.

Note There is a special version of PerfectSound 3.0 for A1000. Do not try to use a gender changer to adapt the A500/2000 version to an A1000. If you own a 1000 you must buy the A1000 version due to differences between the parallel ports.

Be Smart, Don't Start If you are a kid, and have a lot of experience with not doing your homework, do not get this program! It is extremely addicting. You'll find yourself sitting up 'til midnight making sound effects (not that that's bad!). You'll get caught up in it 'til you can't even find time to annoy your parents. ■

Lemmings...Continued from page 9

described, are a series of icons that control the game play.

Four of the icons are for game control. You can increase or decrease the flow of lemmings onto the level, you can pause the game, or you can nuke it if you find yourself in a no-win situation. The remaining eight icons indicate special skills that can be bestowed on lemmings. A CLIMBER can climb vertical surfaces. A FLOATER will use an umbrella to ensure a safe descent from heights. A BLOCKER will stand with his arms outstretched to stop other lemmings from passing. These lemmings allow you the time to get things in order for the rest of the lemmings to safely make it to the exit. A BOMB will dispatch a single lemming. This is how you get rid of a BLOCKER that is no longer required. Sadly, a small five-second countdown indicator appears over his head and at about 1-second you hear a small "OH NO" before he disintegrates in a shower of sparks. In the words of Mr. Spock, "The needs of the many outweigh the needs of the few". A BRIDGE BUILDER can build ascending brides. He will lay just twelve bricks and then turn back into a WALKER (a normal lemming) unless you tell him to continue. A BASHER will dig a horizontal tunnel. A MINER will dig a diagonal tunnel downward. A DIGGER will burrow vertically.

The way you play is to click on the attribute of you choice and then click on a lemming. I know that at first glace it appears that with these attributes there would be no problem getting across any obstacle. But there's a catch. On each level there is a limited number of each attribute available. There may be none of a particular attribute. That means that you have to figure a way for just a small number of lemmings to prepare the path for the rest of them that will follow. And remember, there is a limited time in which to accomplish that.

There are a couple of other things of note in this game. Most Psygnosis games have suffered from a couple of serious flaws. They don't recognize multiple floppy drives and they don't capitalize on the presence of expanded RAM to eliminate multiple reads from the floppy. Lemmings addresses both of those problems -- a very welcome improvement. The only other improvement I could desire along those lines would be the ability to install the game on my hard drive. Lemmings is copy-protected which eliminates that possibility.

So what's the verdict? I think I'm addicted. The graphics are excellent, the music and sound effects are delightful and the game play is engaging. At the FUN difficulty level, the game can be mastered by anyone (I dislike games that are too difficult) but at the MAYHEM level, you'd better be quick. That makes for a game that should appeal to just about everyone. This one comes with my highest recommendation.

Ahhh...Spring!!
Palmtrees *by David James*

Pagestream...Continued from page 14

module. GIF is the graphic standard created by CompuServe for bit-mapped images. DR2D is the new Commodore vector graphic standard which we will be seeing a lot more of in the future.

Under the heading of small improvements are such things as a new on-screen toolbox. The functions remain the same as before, but the display has been cleaned up so as to be more friendly. The screen rendering times for fonts has also been improved by a small degree.

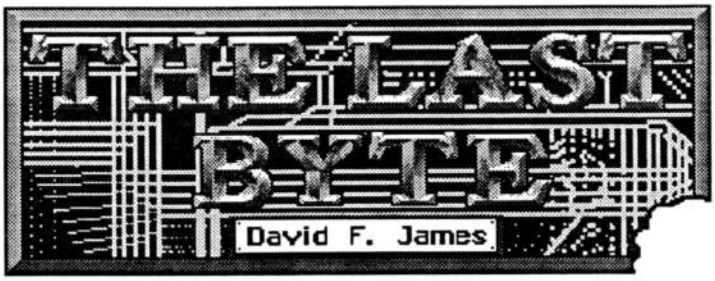
There have also been a series of bug fixes. The most important of these in my opinion has to do with text flow. With all previous versions of PageStream, if there were linked blocks of text in a document, and if the text formatting controls were set to automatically indent the beginnings of paragraphs, and if the beginning of a paragraph fell on the first line of a block which had text flowing into it, the paragraph would not indent. That's been bugging me for a long time. It's fixed now.

Soft-Logik spokesperson Stephanie Manning has stated that "version 2.1 would make other Amiga desktop publishing programs obsolete." That may be an over statement. Actually, I think the high level of competition in the desktop publishing arena is improving all the available products and I hope that it continues. I do think it is fair to say, however, that this latest release of PageStream moves it firmly to the top of the heap.

And to heat up the competition even further -- coming soon from Soft-Logik: a new structured drawing program to go head to head with ProDraw.

Amiga News...Continued from page 7

Today referred to OS/2 as a "commercial flop" (Microsoft Target of FTC Probe, by Kathy Rebello, p. 3B). Rebello should have added "technical flop." Apparently IBM and Microsoft are fighting with each other over who gets stuck with OS/2 development. IBM has been repeatedly criticized for being way behind schedule and failing to promote and advertize OS/2 (they probably don't want their name - as tarnished as it is - connected with OS/2; who could blame them). This is discussed in two articles in the March 11 issue of Computerworld ("User Gripes on OS/2 to spur IBM Marketing Blitz" by Patrica Keefe and "No Limelight for OS/2 at Show" by James Daly.) Of course, many people in the MS-DOS world and Microsoft's advertizing have referred to Windows as revolutionary! Imagine, a lame copy of the Amiga's OS (which has been around for six years) is hailed as revolutionary. Talk about media hype! ■



THE LAST BYTE

David F. James

Hello everyone! I hope your day is going perfectly... Some of you are probably tired after a hard day at work, play, or school. Do you know how to spell relief? It's simple! PCG. A good way to unwind every month is to come to the meeting and talk to your friends, meet new friends, or just walk around and watch friends meet!

It's hard to believe it's the middle of March already. I know this because my son told me to, "Go fly a kite". Know what? That's not a bad idea. It is great being out on an open field watching the blue sky, filled with billowing white clouds, as your kite string breaks. Oh well, time to make a new kite anyway.

And thinking about clouds makes me think of the program CLOUD. CLOUD generates and displays fractal surfaces that look like real clouds. These images are called "fracto-cumulus" clouds. When I look at these clouds I feel like I am lying on my back looking up at the sky.

This program needs at least 200k to run.

When you run CLOUD it brings up a custom lo-res (320x200) screen. The screen is divided into two sections. On the left quarter of the screen you see a control panel with three sets of panels. The right side of the screen is where the image is displayed. At the top of the screen is the standard window close gadget. (You exit cloud by clicking on the window's close gadget. You can also use the window gadget to push the CLOUD program in the background while running other programs. I am doing this as I write this column. (I look at CLOUD then jump to my word processor to write what I see).

CONTROL PANEL

The first set of buttons:

AUTO - Turning on "auto" makes the program loop between generating and displaying new images. To stop the program click on "auto" a second time.

PAUSE - This pauses the program while in the automatic loop. You can then select other pallets.

SAVE - This button did not work.

RAND - This button is used to randomize the starting seed number. Without this function you would always see the same clouds every time you ran the program.

SCROLL - This button toggles which way the image is drawn. The image fills in from the top down unless this button is pushed. Then the image is scrolled upwards, with the old image disappearing off the top of the window while the new image appears on the bottom. With this type of scrolling you see what looks like "lightning".

GEN - This button generates a new image and displays it.

RE-DO - This button is used to re-display the present image. You can try different scalings and re-do the picture.

"d = xx%" - This string button takes a two digit number whose value is used to generate a new image. The value determines the smoothness of the image. Using the "right" values gives a more realistic image.

THE SECOND SET OF BUTTONS:

LOG - selects a logarithmic scaling.
LIN - selects a linear scaling.
EXP - Selects an exponential scaling.
HISTO - Selects an equal area scaling between colors and data. You choose one of the four buttons to select the type of scaling performed to map the image data to the screen.

THE THIRD SET OF BUTTONS:

COLOR BAR - This is not a gadget. It shows what the palette is.

REVERSE - This button flips the color palette 180 degrees. Dark sections become light and light sections of the image become dark.

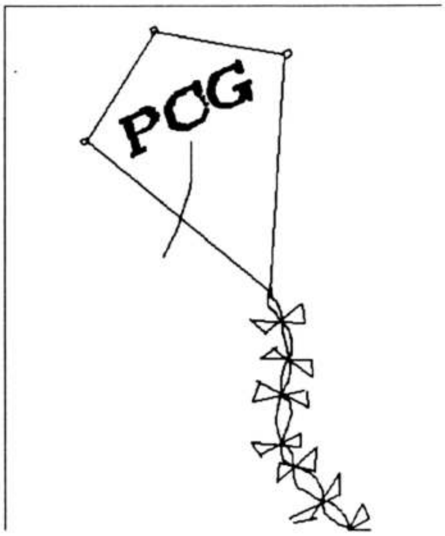
ATMOS - selects the "cloud" color palette.
EARTH - selects the Rand McNally map palette.
WATER - selects an "island in the ocean" palette.
THERM - palette looks like thermal images.

Choose one of the above buttons to select the color palette for displaying the image. These are active at all times, so that while generating the next image, you can play with the one currently on the screen.

You are now probably asking yourself if you really need a program that makes "clouds". How can you possibly make use of this program other than relieving your tension by watching it make clouds? You might use a "picture grabber" to save a picture to load into a paint program like DeluxePaint. From there you can make the clouds a brush and fill the screen with clouds. Next, you can use these clouds as a background for your vacation titles, presentations and displays, or in your slide shows. You may also want to use clouds to wrap around a 3D object you are rendering.

RAMBLIN' ON....

Lately I have been using my Amiga with DeluxePaint III to draw black and white pictures of old barns. Some of these barns are imagined and some are real. I draw these on a hi-res screen. Using such small dots means I have to do a lot of work in the magnify mode. This takes a long time. (Using the mouse is not the best way to draw). After working on a particular barn for two hours (getting it perfect enough to suit me) I noticed the palette had more colors than what I needed. (The less colors in a palette the less memory need to store the picture). Now, I have been using computers long enough to know that before you do changes to what you are working on you should save your work to disk first. I should have known better - I did know better. What I am getting at is when I went to change the number of colors used to two (black and white) I got a GURU. I really liked this picture, but it's gone now! (Some people have to learn the hard way)!



NEW SECTION: -CAPTAIN K-

This new section of my column will be for backdoors and hints for games found on the Amiga. I will be doing this as long as CAPTAIN K the Gamemaster throws these hints my way. We all know that the Amiga is one of the best "game" computers. Yes folks, when you own an Amiga you can have "your cake and eat it too".

If you play Shadow of the Beast I and find you keep getting killed too quickly try this: Boot disk one and hold down both mouse buttons plus the joystick button when the "BEAST" title appears. Keep these three buttons depressed until you are told to insert disk 2. I know you will find this very satisfying. Also, before you go into the castle you should look for a light source. Before you go into the well you should find a key!

Before playing a level on Killing Game Show push the HELP button. Maybe it will show you a way.

Keep computing and have a nice day! I'll see you at the meeting. ■

PLAN FOR THESE UPCOMING DATES

In order to save expensive phone calls, please mark these dates on your calendar.

Board Members, please note:

ALL BOARD MEETINGS ARE MANDATORY

FRI May 3, 1991 Newsletter Articles Due on PCG BBS (434-5483)
SUN May 12, 1990 - Newsletter Folding and BOARD MEETING
SUN May 19, 1990 - Membership Meeting Duquesne University

[redacted]

Mary Cassatt USA 23
Flower USA For U.S. addresses only
PITTSBURGH, PA 1991

Pittsburgh Commodore Group
P.O. BOX 16126
Pittsburgh, PA. 15242

Suffering from the computer confusion blues? ***PCG*** can be just the prescription you need. No question is too simple or too complex for the collective resources of the hundreds of Commodore users comprising the Pittsburgh Commodore Group, the largest user group in the area. *PCG* supports the Commodore user with specialized discussion groups addressing your interests, monthly "hands-on" meetings for face-to-face idea sharing, an association store offering bargain prices on instructive books, disks, and many other useful items, and a Public Domain software library of thousands of programs. It's the beginning of the end of the computer blues when you join the *PCG*. For more information on the Pittsburgh Commodore Group, call the ***PCG*** **BBS** at **434-5483**, or contact any Board Member.

We meet on the third Sunday of each month at

DUQUESNE UNIVERSITY
MELLON SCIENCE HALL
DOORS OPEN AT 9:30 AM

Commodore, VIC-20, C-64, and C-128 are registered trademarks of Commodore Business Machines, Ltd. Amiga is a registered trademark of Commodore Amiga, Inc. Apple and LaserWriter are registered trademarks of Apple Computer, Inc.

This newsletter was made possible only through the contributions of the members of the *PCG*, and their Sponsors. All articles contained herein are solely the work of the individual authors, and may not reflect the opinion of the *PCG*. Any article may be reprinted provided that the author and the *PCG* receive proper credit.

Duquesne University Campus